Dkt. 1141/67087

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application of: Tetsuhiko TAKAHASHI et al.

Serial No.: 10/089712 Art Unit: 2859

Date Filed: April 1, 2002 Examiner: Dixomara Vargas

For: NUCLEAR MAGNETIC RESONANCE IMAGING APPARATUS AND METHOD

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AMENDMENT

This Amendment is submitted in response to the Office Action dated June 9, 2003 in connection with the above-identified application.

Amendments to the specification begin on page 2.

Amendments to the claims are reflected in the Listing of Claims section which begins on page 3. (Non-elected claims 2-8 and 16 are canceled without prejudice to prosecuting their subject matter elsewhere.)

Remarks begin on page 9 of this paper.

Listing of Claims

The following listing of claims will replace all prior versions, and listings, of claims in the subject application:

1. (Currently amended) A magnetic resonance imaging apparatus comprising ~~comprises~~ magnetic field generating means for producing nuclear magnetic resonance in an object to be examined, detecting means for detecting nuclear magnetic resonance signals emitted from the object, control means for controlling the magnetic field generating means and detecting means, computing means for visualizing morphology or functions of the examined object using the nuclear magnetic resonance signals detected by the detecting means, and display means for displaying the computed results as images,

wherein the control means operates so that a step of acquiring a plurality of nuclear magnetic resonance signals as image-forming data at one excitation is performed continuously and, ~~during the continuing step~~ between image-data-acquiring steps, a step of acquiring correction data plural times at a desired interval is performed,

and the computing means comprises means for producing a correction data group, which includes temporal variations in the interval, using a plurality of the correction data acquired at a desired interval and means for correcting the image-forming data using correction data from among the correction data group, which corresponds to acquisition time of the image-forming data.

2. (Withdrawn)

3. (Withdrawn)

4. (Withdrawn)

5. (Withdrawn)

6. (Withdrawn)

7. (Withdrawn)

8. (Withdrawn)

9. (Currently amended) A magnetic resonance imaging apparatus comprising ~~comprises~~ magnetic field generating means for producing nuclear magnetic resonance in an object to be examined, detecting means for detecting nuclear magnetic resonance signals emitted from the object, control means for controlling the magnetic field generating means and detecting means, computing means for visualizing morphology or functions of the examined object using the nuclear magnetic resonance signals detected by the detecting means, and display for displaying the computed results as images,

wherein the control means acquires a plurality of correction data at a predetermined interval and acquires image-forming data continuously between acquisitions of the correction data, and the computing means produces a correction data group, which corresponds to acquisition time of the image-forming data, using the correction data and corrects the image-forming data using the correction data group for each corresponding acquisition time.

10. (Original) The magnetic resonance imaging apparatus of claim 9, wherein the computing means reverses data arrangement corresponding to the polarity of gradient magnetic field pulses after acquisition of the image-forming data.

11. (Original) The magnetic resonance imaging apparatus of claim 9, wherein a plurality of image-forming data acquired continuously between acquisitions of the correction data by the control means corresponds to one image.

12. (Original) The magnetic resonance imaging apparatus of claim 11, wherein a plurality of image-forming data acquired continuously between acquisitions of the

correction data by the control means is for an identical slice and two-dimensional images of the slice are displayed successively on the display means.

13. (Original) The magnetic resonance imaging apparatus of claim 11, wherein a plurality of image-forming data acquired continuously between acquisitions of the correction data by the control means is for different slices, and two-dimensional images of the plural slices are displayed simultaneously on the display means.

14 (Original) The magnetic resonance imaging apparatus of claim 11, wherein a plurality of image-forming data acquired continuously between acquisitions of the correction data by the control means is for adjacent slices, and the computing means produces a three-dimensional image using two-dimensional image data and displays the tree-dimensional image on the display means.

15. (Original) A magnetic resonance imaging method of detecting nuclear magnetic resonance signals emitted from an object to be examined, imaging morphology or functions of the object using the nuclear magnetic resonance signals and displaying the computed results as images, comprising ~~comprises~~ the steps of;

acquiring correction data at a predetermined interval,

acquiring image-forming data continuously between acquisitions of the correction data,

producing a correction data group corresponding to acquisition time of the image-forming data using the correction data, and

correcting the image-forming data using the correcting data group for each corresponding acquisition time.

16. (Withdrawn)

17. (Original) The magnetic resonance imaging apparatus of claim 1, wherein

the computing means produces a correction data group by interpolation using adjacent correction data.

18. (New) The magnetic resonance imaging apparatus of claim 17, wherein the interpolation is a linear interpolation.

19. (New) The magnetic resonance imaging apparatus of claim 17, wherein the computing means produces correction data corresponding to the acquisition time of the image-forming data as the correction data group and corrects the image-forming data by the correction data produced corresponding to the acquisition time of the image-forming data.

20. (New) The magnetic resonance imaging apparatus of claim 1, wherein the computing means produces the correction data group using the correction data subjected to one-dimensional Fourier transform in the readout direction and corrects the image-forming data subjected to one-dimensional Fourier transform in the readout direction by the correction data group corresponding to the acquisition time.

21. (New) The magnetic resonance imaging apparatus of claim 20, wherein the computing means produces the correction data group by interpolation using the correction data subjected to one-dimensional Fourier transform in the readout direction.

22. (New) The magnetic resonance imaging apparatus of claim 21, wherein the interpolation is a linear interpolation.

23. (New) The magnetic resonance imaging apparatus of claim 21, wherein the computing means produces correction data corresponding to the acquisition time of the image-forming data as the correction data group and corrects the image-forming data by the correction data produced corresponding to the acquisition time of the image-

forming data.

24. (New) The magnetic resonance imaging apparatus of claim 9, wherein the computing means produces a correction data group by interpolation using adjacent correction data.

25. (New) The magnetic resonance imaging apparatus of claim 24, wherein the interpolation is a linear interpolation.

26. (New) The magnetic resonance imaging apparatus of claim 24, wherein the computing means produces correction data corresponding to the acquisition time of the image-forming data as the correction data group and corrects the image-forming data by the correction data produced corresponding to the acquisition time of the image-forming data.

27. (New) The magnetic resonance imaging apparatus of claim 9, wherein the computing means produces the correction data group using the correction data subjected to one-dimensional Fourier transform in the readout direction and corrects the image-forming data subjected to one-dimensional Fourier transform in the readout direction by the correction data group corresponding to the acquisition time.

28. (New) The magnetic resonance imaging apparatus of claim 27, wherein the computing means produces the correction data group by interpolation using the correction data subjected to one-dimensional Fourier transform in the readout direction.

29. (New) The magnetic resonance imaging apparatus of claim 28, wherein the interpolation is a linear interpolation.

30. (New) The magnetic resonance imaging apparatus of claim 28, wherein the computing means produces correction data corresponding to the acquisition time of

the image-forming data as the correction data group and corrects the image-forming data by the correction data produced corresponding to the acquisition time of the image-forming data.